

TITLE: METHOD OF ATTACHING SOLDER BALLS TO BGA
PACKAGE UTILIZING A TOOL TO PICK AND DEPOSIT THE SOLDER
BALL IN FLUX

Inventor: Chad A. Cobbley
Serial No.: 09/639,486
Docket No.: 3636.1US (97-1349.1)

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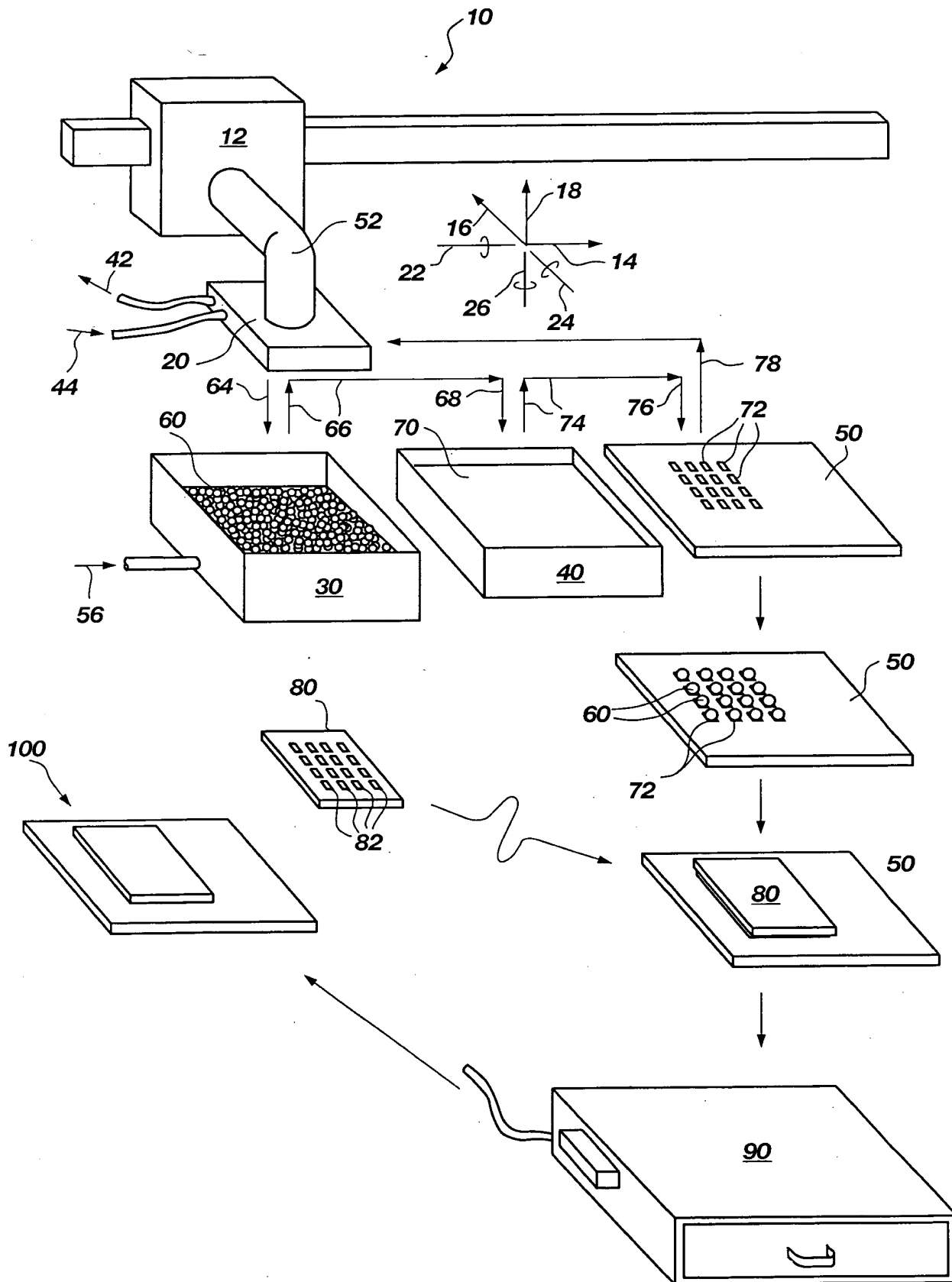


Fig. 1

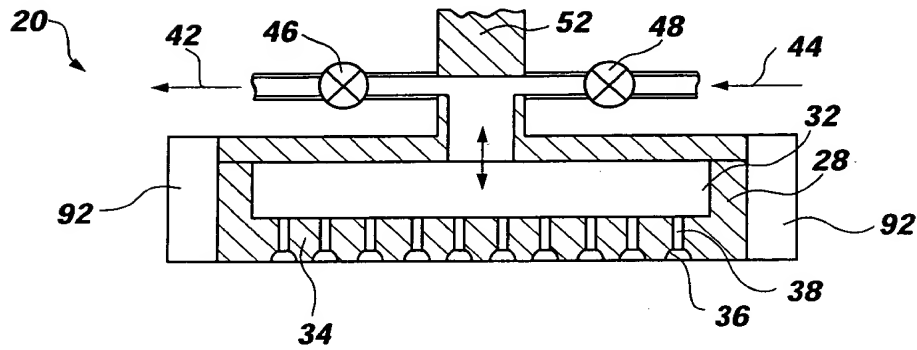


Fig. 2

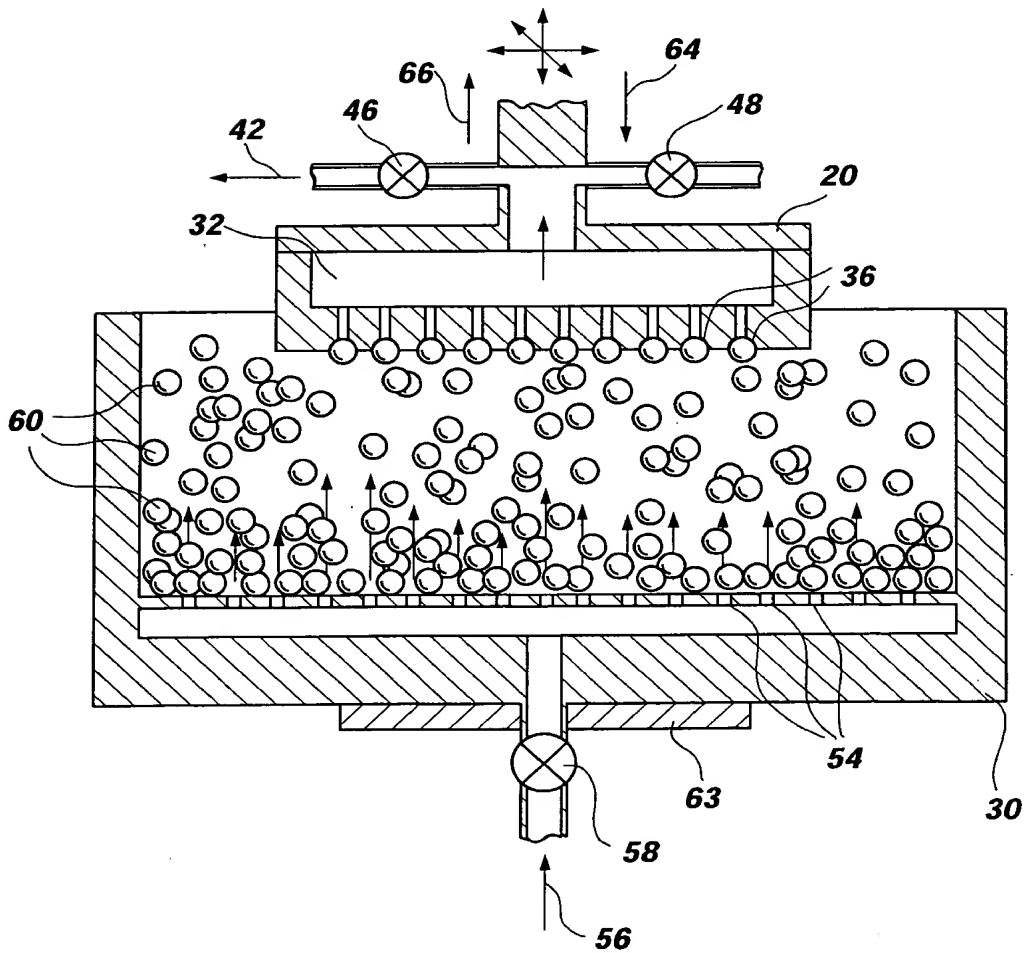


Fig. 3

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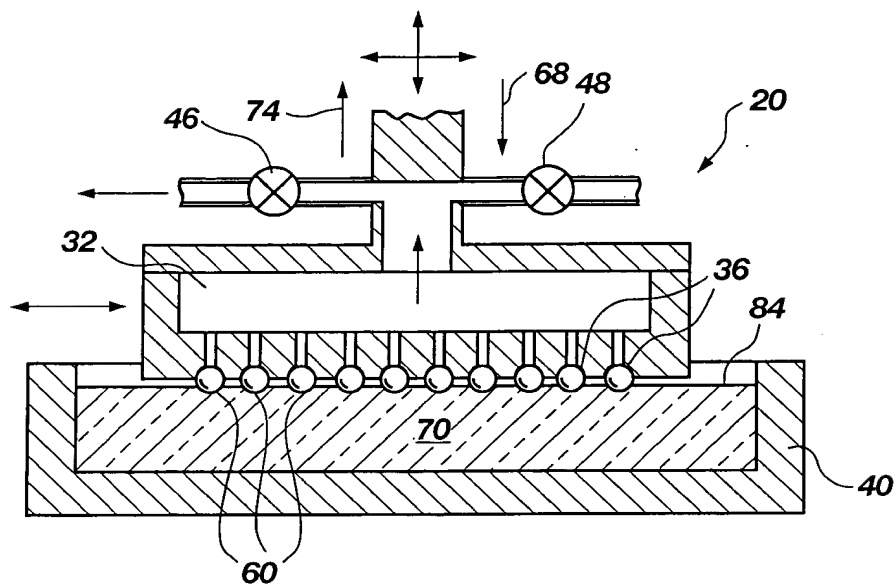


Fig. 4

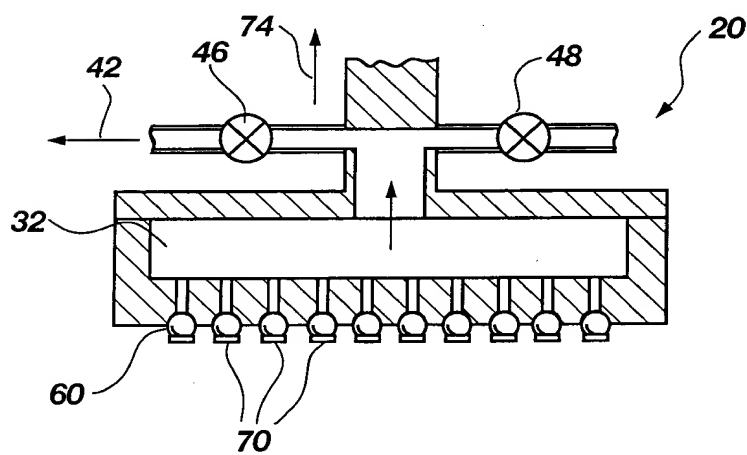
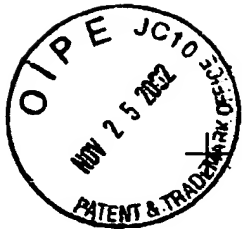


Fig. 5

This cross-sectional view shows a multi-layered assembly. At the top, a central block (78) is flanked by two circular components (46, 48) mounted on a horizontal bar (44). Below this, a thick, hatched block (32) contains a central rectangular cavity (36). The top surface of this block is labeled 92. A horizontal layer (38) is positioned directly beneath the central cavity. Below the hatched block is a row of ten small, rounded components (60) mounted on a common base (50). Wires (70, 72) extend from these components through a bottom substrate (86) and exit through a series of openings (88) in the substrate. A curved arrow (20) indicates a flow or direction of movement from the right side of the assembly.



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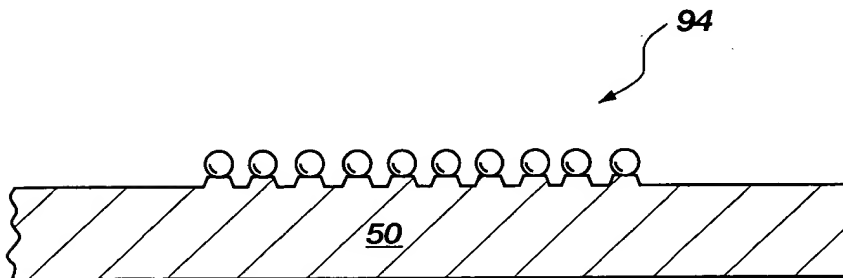


Fig. 8

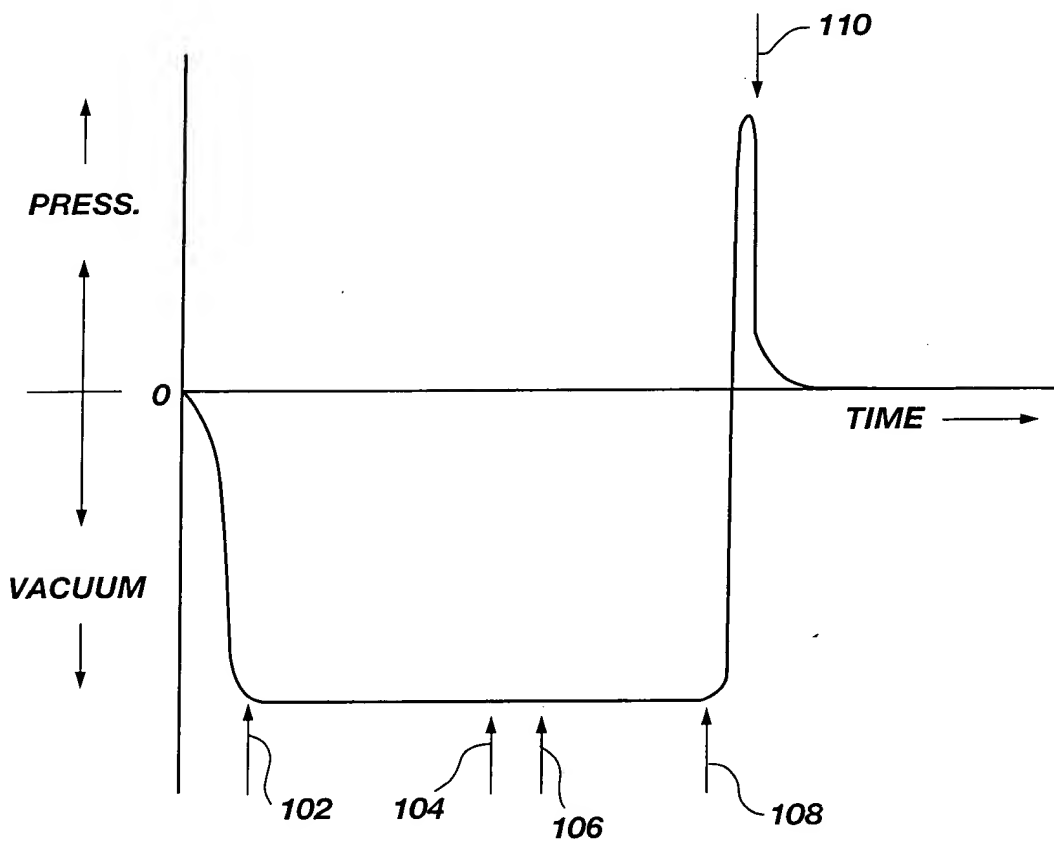


Fig. 9



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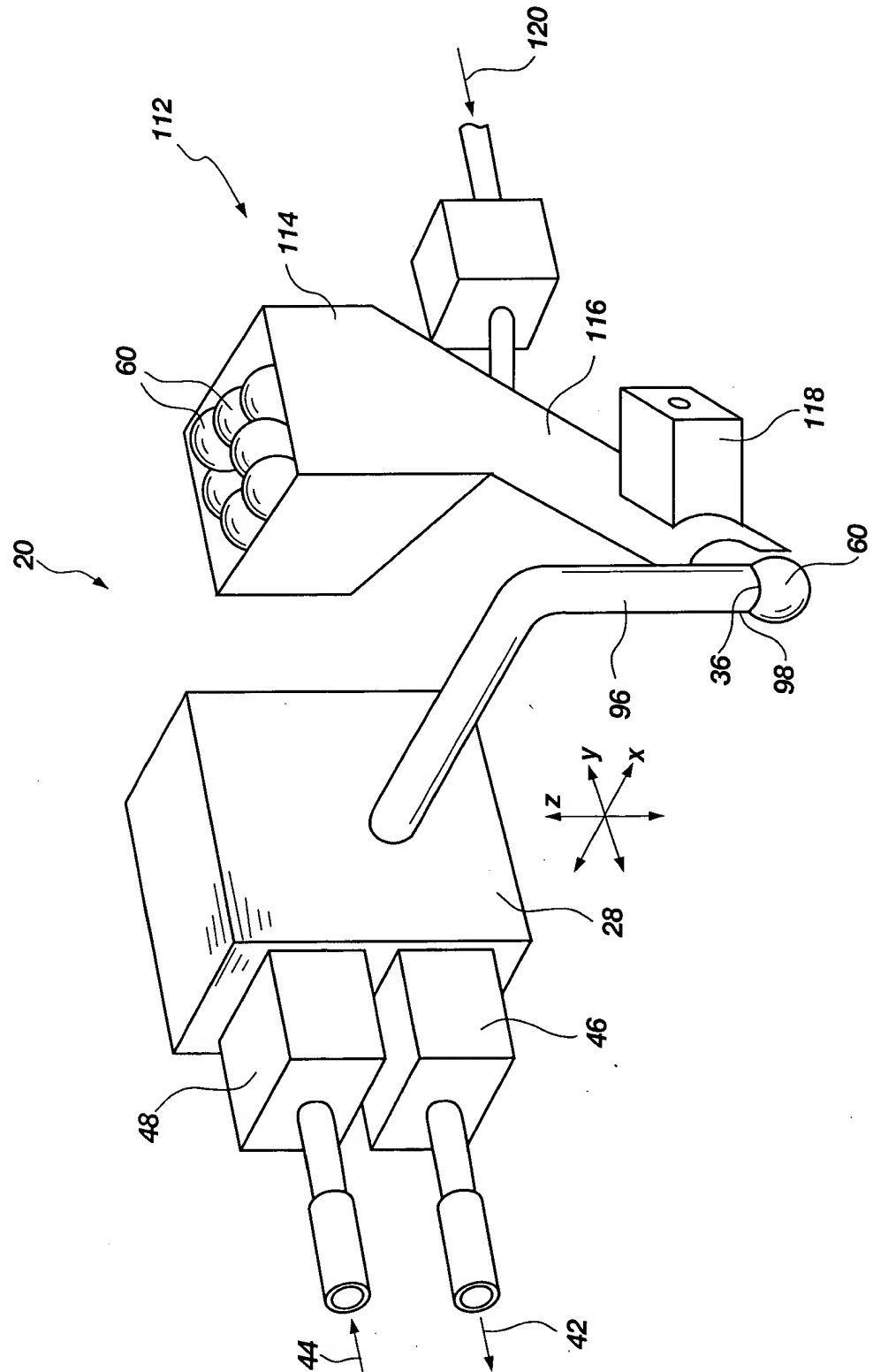
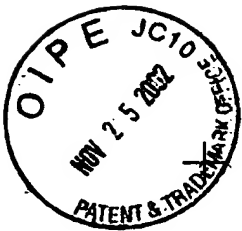


Fig. 10



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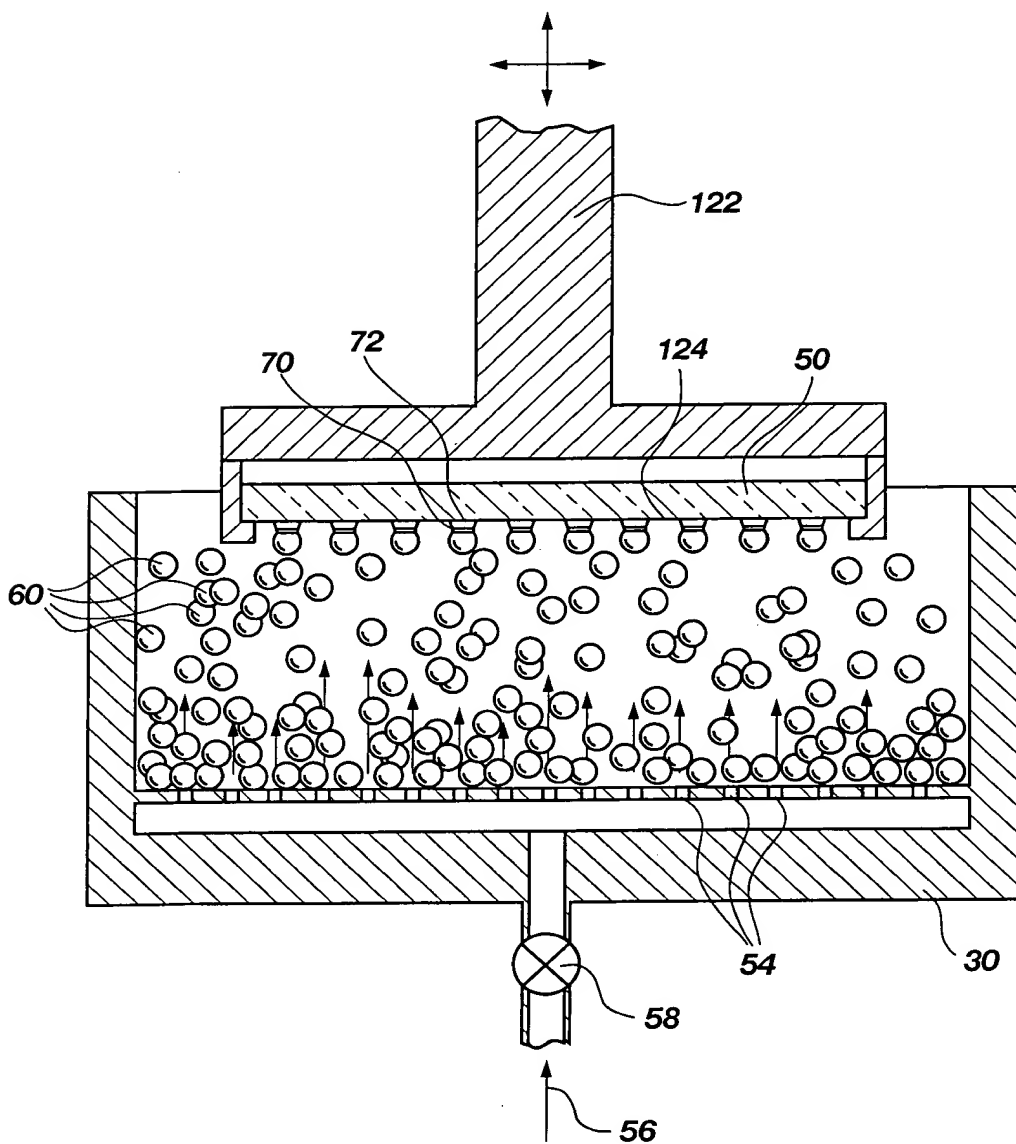
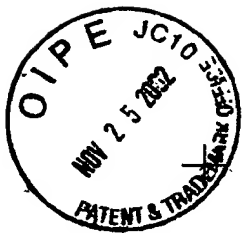


Fig. 11



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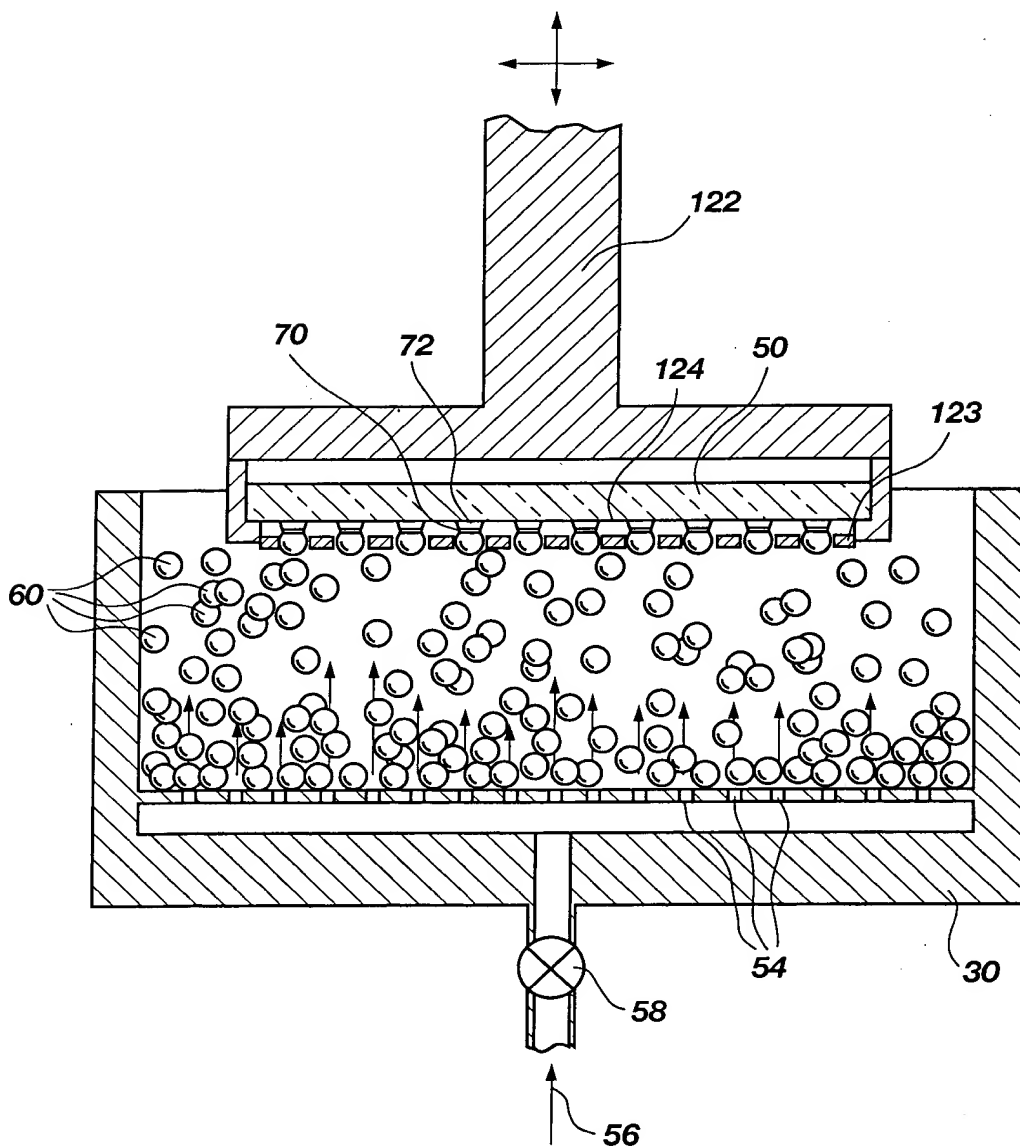
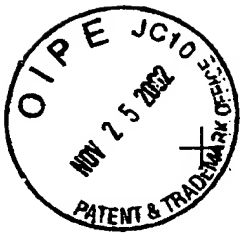


Fig. 11A



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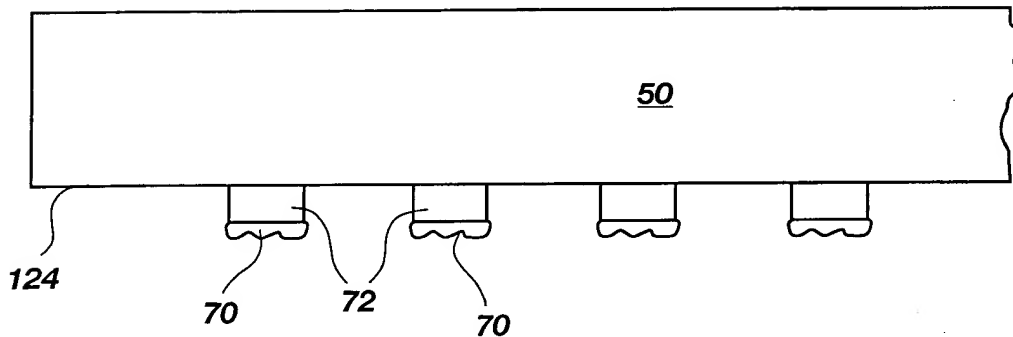


Fig. 12

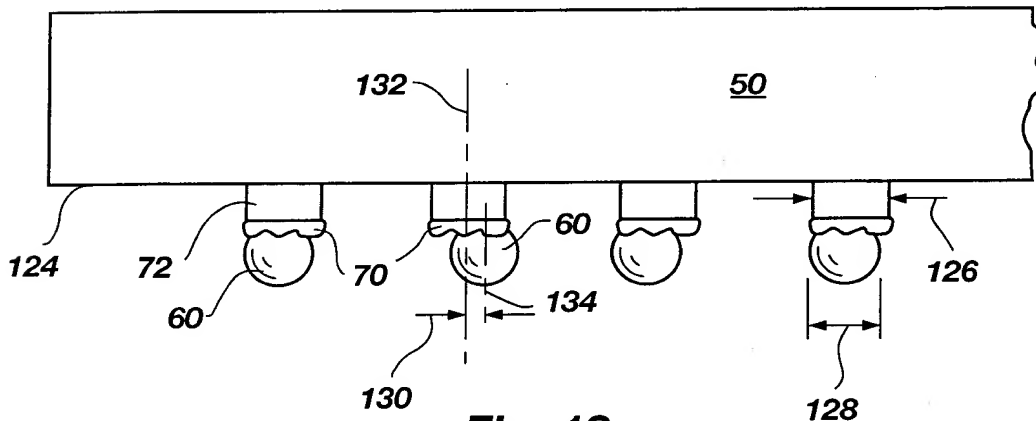


Fig. 13

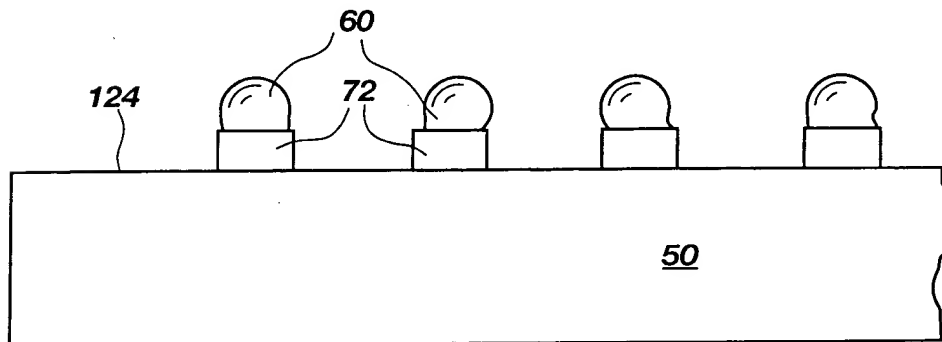


Fig. 14

